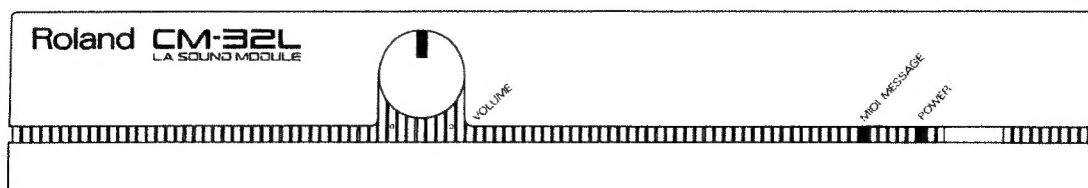


Roland

LA SOUND MODULE

CM-32L

OWNER'S MANUAL



For the U.K.

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE : NEUTRAL
BROWN : LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

For West Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

LA SOUND MODULE CM-32L

(Gerät Typ Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

Amtsbl. Vfg 1046/1984

(Amtsblattverfügung)

funk-entstört ist

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka/Japan

Name des Herstellers/Importeurs

For the USA

RADIO AND TELEVISION INTERFERENCE

WARNING — This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception.

The equipment described in this manual generates and uses radio frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules. These rules are designed to provide reasonable protection against such a interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

- Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable. These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non-Roland devices, contact the manufacturer or dealer for assistance.
- If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:
 - Turn the TV or radio antenna until the interference stops.
 - Move the equipment to one side or the other of the TV or radio.
 - Move the equipment farther away from the TV or radio.
 - Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
 - Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV. If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission: "How to Identify and Resolve Radio — TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-006-00345-4

For Canada

CLASS B

NOTICE

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B

AVIS

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Règlement des signaux parasites par le ministère canadien des Communications.

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Thank you for purchasing the Roland LA Sound Module CM-32L. To make the best use of the CM-32L, please read this owner's manual carefully.

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Please read the separate "Guidebook for MIDI" before reading this owner's manual.

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## ■ *Features of the CM-32L*

The following describes the features of the CM-32L.

### ● **Sound Module that is ideal for computer music**

The CM-32L features a multi timbral sound module that consists of 9 different Part (including one Rhythm Part) and therefore can be used as 8 individual synthesizers plus a rhythm sound module. The compact and simply designed body may be effectively used for computer music.

The CM-32L's sound module is almost the same as the Multi Timbral Sound Module MT-32 and therefore can use the application software of the MT-32.

### ● **The CM-32L adopts LA sound system that results in high quality sounds**

LA synthesis involves a great many technological advances resulting not only in a superior sound quality but also an improved ease of programming which have been proved in the D-50 or D-20.

### ● **The CM-32L can produce a maximum of 32 voices using 32 Partials**

Because the CM-32L can produce as many as 32 voices at the same time, you can enjoy high level ensemble performance.

### ● **Rhythm Part is provided specifically for rhythm performance**

The Rhythm Part features various drum and percussive voices, allowing you to enjoy wide varieties of rhythm performances. It also includes SE's (sound effects) such as a laughing voice or explosion for you to create unique performance.

### ● **The CM-32L features a great many sounds**

The CM-32L stores 128 different instrument sounds, 30 rhythm sounds and 33 SE's (sound effects).

### ● **The built-in Digital Reverb that create realistic reverb effect**

The CM-32L's digital reverb adds spaciousness and richness to the sound.

---

## ■ *Important Notes*

### 〈Concerning the power supply〉

- When employing an AC adaptor, make certain you use only one that has been supplied by the manufacturer. Use of any other power adaptor could result in malfunction or damage.
- When you make any connections with other devices, always turn off the power to all equipment first. This will help in preventing malfunction, and damage to speakers.
- Do not force the unit to share the same power outlet as one used for distortion producing devices (such as motors, variable lighting devices). Be sure to use a separate power outlet.
- Before using the AC adaptor, always make certain the voltage of the available power supply conforms to its rating.
- Do not place heavy objects onto, step on, or otherwise risk causing damage to the power cord.
- Whenever you disconnect the AC adaptor from the outlet, always grasp it by plug, to prevent internal damage to the cord and hazard of possible short circuits.
- If the unit is not to be used for a long period of time, unplug the cord from the socket.

### 〈Concerning placement〉

- Avoid using or storing the unit in the following places, as damage could result.
  - Places subject to extremes in temperature. (Such as under direct sunlight, near heating units, above equipment generating heat, etc.)
  - Places near water and moisture. (Baths, washrooms, wet floors, etc.) Places otherwise subject to high humidity.
  - Dusty environments.
  - Places where high levels of vibration are produced.
- Placing the unit near power amplifiers or other equipment containing large transformers may induce hum.
- Should the unit be operated nearby television or radio receivers, TV pictures may show signs of interference, and static might be heard on radios. In such cases, move the unit out of proximity with such devices.

---

#### **<Maintenance>**

- For everyday cleaning, wipe the unit with a soft dry cloth, or one that is dampened slightly. To remove dirt that is more stubborn, wipe using a mild, neutral detergent. Afterwards, make sure to wipe thoroughly with a soft cloth.
- Never apply benzene, thinners, alcohol or any like agents, to avoid the risk of discoloration and deformation.

#### **<Other Precautions>**

- Protect the unit from strong impact.
- Avoid getting any foreign objects (coins, wire, etc.), or liquids (water, drinks, etc.) into the unit.
- A certain small amount of heat will be radiated from the unit, and thus should not be considered abnormal.
- Before using the unit in a foreign country, check first with your local Roland Service Station.
- At any time that you notice a malfunction, or otherwise suspect there is damage, immediately refrain from using the unit. Then contact the store where bought, or the nearest Roland Service Station.
- Since the unit is equipped with a circuit, protection device, it requires a brief interval after power is turned on before it can be operated.

---

# 1. Panel Description

## *(1) Front Panel*

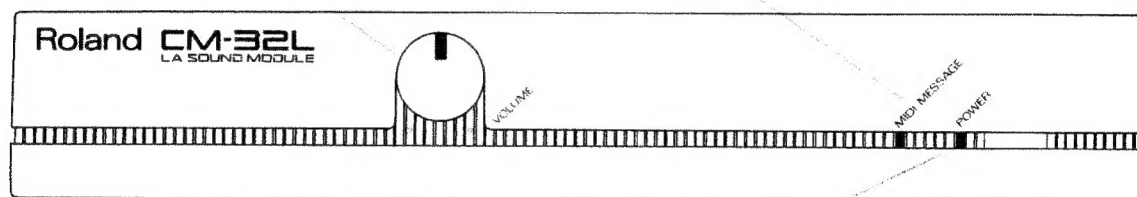
### **VOLUME** (Volume Control Knob)

This adjusts the overall volume of the CM-32L that is output from the Output Jacks or Headphone Jack. Rotating the knob clockwise will increase the volume, and rotating it counter clockwise will decrease it.

\* The volume balance of the individual Part can be controlled with the MIDI Volume (Control Change) messages.

### **MIDI MESSAGE** (MIDI Message Indicator)

This lights up when the MIDI messages received.



### **POWER** (Power Indicator)

This lights up when the unit is switched on.

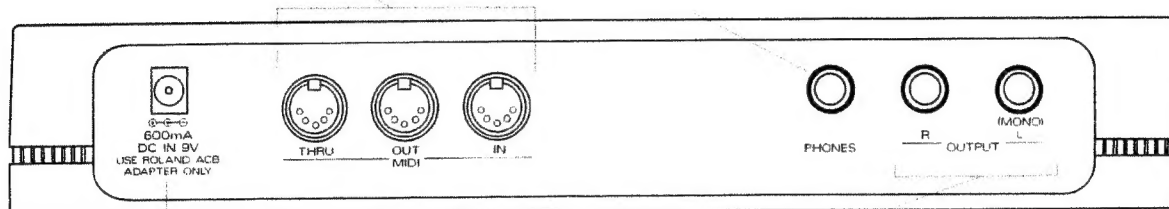
## (2)Rear Panel

### **MIDI IN/OUT/THRU** (MIDI Connectors)

To these sockets, connect MIDI devices.

### **PHONES** (Headphone Jack)

Connect headphones to this jack. Use headphones of 8 to 150 ohm impedance, if possible. Even while the Headphone Jack is connected, the Output Jack send signals just the same.



### **OUTPUT** (Output Jacks)

Sounds of the CM-32L are output through these Output Jacks. The L and R jacks are provided, so use both of them for stereo output. For mono output, use the L (MONO) jacks.

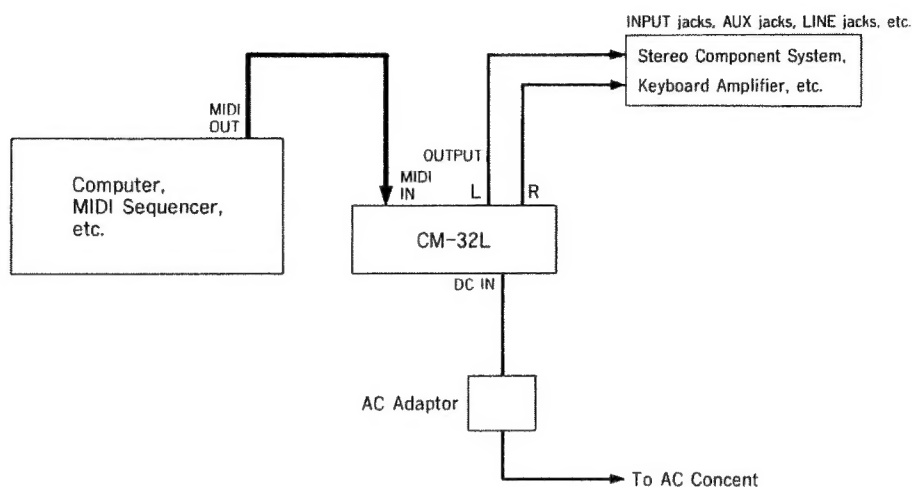
### **DC IN** (AC Adaptor Jack)

Connect the supplied AC adaptor to this jack.



## 2. Connections

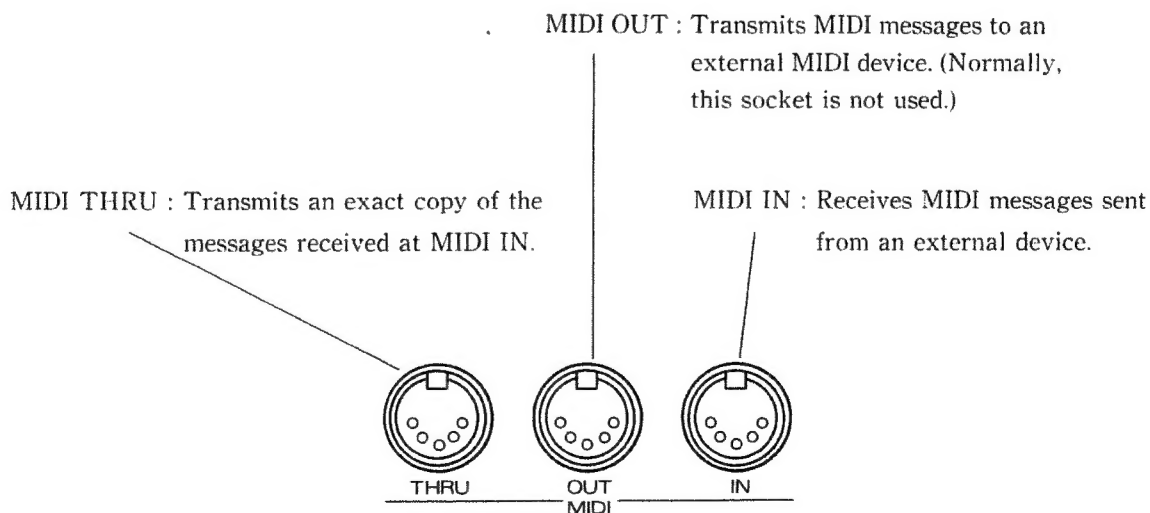
To play the CM-32L, connect the devices as shown below.



### ●MIDI Cable Connections

Connect the MIDI IN connector on the CM-32L to the MIDI OUT socket on a MIDI sequencer using a MIDI cable.

To use another MIDI sound module together with the CM-32L, connect it to the MIDI THRU connector. However, do not connect more than three or four MIDI devices through MIDI THRU's. If more number of devices, MIDI signals may not be received correctly causing malfunction of the entire system. If you wish to setup many number of devices, use the MIDI Thru Box.

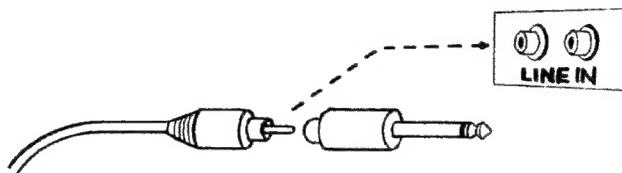


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### ●Audio Cable Connections

Connect the Output Jacks of the CM-32L to the input jacks of a keyboard amplifier or stereo component system using an audio cable. The CM-32L features stereo outputs, but use the L (MONO) jack only for mono output.

- ◆When connecting the CM-32L to a keyboard amplifier or an electronic piano that features external input jack :  
If it features an input level selector switch, set it to "H".
- ◆When connecting the CM-32L to a stereo component system :  
Connect the CM-32L to the LINE IN or AUX IN (input jack). When the input jack are pin jack type, remove the adaptor from the audio cable of accessory.



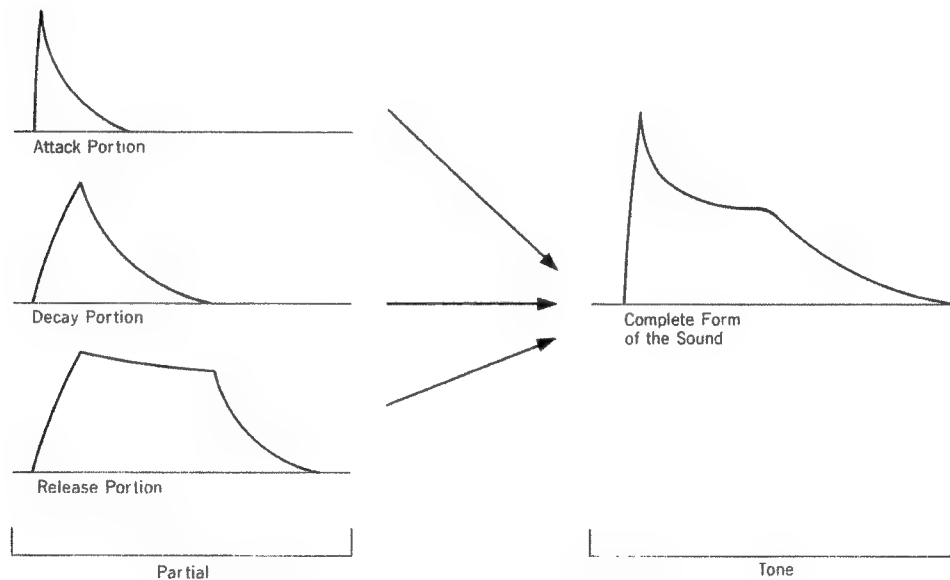
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### 3. Structure of the CM-32L

The following briefly explains the structure of the CM-32L.

#### *(1)LA Sound Synthesis*

LA stands for Linear Arithmetic synthesis which is the heart of the new technology. LA synthesis involves a great many technological advances resulting not only in a superior sound quality but also an improved ease of programming. The LA system uses Partial's to create wide varieties of sounds. A Partial may be called the smallest element of a sound. For instance, a sound may be made from three elements (Partial's) ; attack, decay and release.

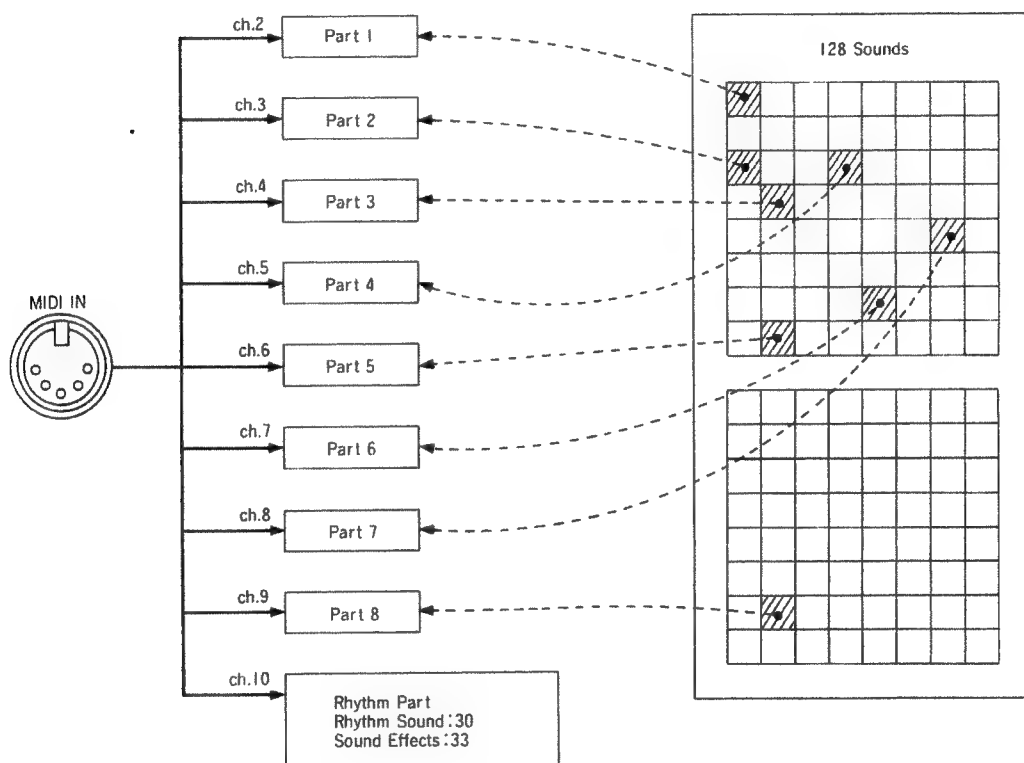


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## (2) Structure of the Sound Module

The CM-32L is a multi timbral sound module that consists of 9 different Parts adopting the LA synthesis. These Parts work like 8 different synthesizers and a rhythm machine.

Each Part is controlled by information received on an individual MIDI channel. So, you must set the receive channel of each Part to the same number as the transmit channel of the external MIDI device. Using a computer or MIDI sequencer that can send more than one MIDI channel messages, you can enjoy ensemble performance with different Parts.



### ●Part

The CM-32L stores 128 different sounds, and any of these sounds can be assigned to each of 1 - 8 Parts. Sounds in a Part can be changed by MIDI Program Change messages. In the Rhythm Part, 63 different drum and SE (sound effects) are assigned to the note numbers.

### ●Partial

The CM-32L can produce a maximum of 32 voices at the same time using 32 Partial. A Tone consists of one to four Partial, and the maximum number of voices that can be played at the same time will vary depending on the number of Partial used in the Tone. For details, see page 18 "7. Maximum Voices".

## 4. Sound Selection

The CM-32L can use the following sounds:

### *(1) Sounds of Parts 1 - 8*

Parts 1 to 8 can use the following sounds:

| PROG#  | TONE        | Pt1 # | PROG # | TONE       | Pt1 # | PROG # | TONE       | Pt1 # | PROG #  | TONE        | Pt1 # |
|--------|-------------|-------|--------|------------|-------|--------|------------|-------|---------|-------------|-------|
| 1/00H  | AcouPiano 1 | 4     | 33/20H | Fantasy    | 3     | 65/40H | AcouBass 1 | 2     | 97/60H  | Brs Sect 2  | 3     |
| 2/01H  | AcouPiano 2 | 2     | 34/21H | Harmo Pan  | 3     | 66/41H | AcouBass 2 | 1     | 98/61H  | Vibe 1      | 3     |
| 3/02H  | AcouPiano 3 | 1     | 35/22H | Chorale    | 3     | 67/42H | ElecBass 1 | 2     | 99/62H  | Vibe 2      | 2     |
| 4/03H  | ElecPiano 1 | 3     | 36/23H | Glasses    | 2     | 68/43H | ElecBass 2 | 1     | 100/63H | Syn Maillet | 1     |
| 5/04H  | ElecPiano 2 | 2     | 37/24H | Soundtrack | 4     | 69/44H | SlapBass 1 | 3     | 101/64H | Windbell    | 3     |
| 6/05H  | ElecPiano 3 | 2     | 38/25H | Atmosphere | 4     | 70/45H | SlapBass 2 | 2     | 102/65H | Glock       | 2     |
| 7/06H  | ElecPiano 4 | 1     | 39/26H | Warm Bell  | 4     | 71/46H | Fretless 1 | 4     | 103/66H | Tube Bell   | 4     |
| 8/07H  | Honkytonk   | 3     | 40/27H | Funny Vox  | 1     | 72/47H | Fretless 2 | 2     | 104/67H | Xylophone   | 1     |
| 9/08H  | Elec Org 1  | 3     | 41/28H | Echo Bell  | 3     | 73/48H | Flute 1    | 4     | 105/68H | Marimba     | 3     |
| 10/09H | Elec Org 2  | 3     | 42/29H | Ice Rain   | 3     | 74/49H | Flute 2    | 2     | 106/69H | Koto        | 2     |
| 11/0AH | Elec Org 3  | 2     | 43/2AH | Oboe 2001  | 2     | 75/4AH | Piccolo 1  | 3     | 107/6AH | Sho         | 4     |
| 12/0BH | Elec Org 4  | 2     | 44/2BH | Echo Pan   | 2     | 76/4BH | Piccolo 2  | 2     | 108/6BH | Shakuhachi  | 4     |
| 13/0CH | Pipe Org 1  | 3     | 45/2CH | DoctorSolo | 2     | 77/4CH | Recorder   | 2     | 109/6CH | Whistle 1   | 2     |
| 14/0DH | Pipe Org 2  | 3     | 46/2DH | Schooldaze | 2     | 78/4DH | Pan Pipes  | 3     | 110/6DH | Whistle 2   | 1     |
| 15/0EH | Pipe Org 3  | 2     | 47/2EH | Bellsinger | 1     | 79/4EH | Sax 1      | 4     | 111/6EH | Bottleblow  | 4     |
| 16/0FH | Accordion   | 2     | 48/2FH | SquareWave | 2     | 80/4FH | Sax 2      | 3     | 112/6FH | Breathpipe  | 3     |
| 17/10H | Harpsi 1    | 4     | 49/30H | Str Sect 1 | 4     | 81/50H | Sax 3      | 2     | 113/70H | Timpani     | 2     |
| 18/11H | Harpsi 2    | 3     | 50/31H | Str Sect 2 | 3     | 82/51H | Sax 4      | 1     | 114/71H | MelodicTom  | 1     |
| 19/12H | Harpsi 3    | 1     | 51/32H | Str Sect 3 | 2     | 83/52H | Clarinet 1 | 3     | 115/72H | Deep Snare  | 2     |
| 20/13H | Clavi 1     | 3     | 52/33H | Pizzicato  | 3     | 84/53H | Clarinet 2 | 2     | 116/73H | ElecPerc 1  | 2     |
| 21/14H | Clavi 2     | 2     | 53/34H | Violin 1   | 3     | 85/54H | Oboe       | 2     | 117/74H | ElecPerc 2  | 2     |
| 22/15H | Clavi 3     | 1     | 54/35H | Violin 2   | 2     | 86/55H | Engl Horn  | 2     | 118/75H | Taiko       | 3     |
| 23/16H | Celesta 1   | 4     | 55/36H | Cello 1    | 3     | 87/56H | Bassoon    | 2     | 119/76H | Taiko Rim   | 1     |
| 24/17H | Celesta 2   | 2     | 56/37H | Cello 2    | 2     | 88/57H | Harmonica  | 2     | 120/77H | Cymbal      | 2     |
| 25/18H | SynBrass 1  | 2     | 57/38H | Contrabass | 2     | 89/58H | Trumpet 1  | 3     | 121/78H | Castanets   | 2     |
| 26/19H | SynBrass 2  | 3     | 58/39H | Harp 1     | 3     | 90/59H | Trumpet 2  | 2     | 122/79H | Triangle    | 2     |
| 27/1AH | SynBrass 3  | 2     | 59/3AH | Harp 2     | 2     | 91/5AH | Trombone 1 | 3     | 123/7AH | Orche Hit   | 4     |
| 28/1BH | SynBrass 4  | 2     | 60/3BH | Guitar 1   | 2     | 92/5BH | Trombone 2 | 2     | 124/7BH | Telephone   | 1     |
| 29/1CH | Syn Bass 1  | 2     | 61/3CH | Guitar 2   | 2     | 93/5CH | Fr Horn 1  | 3     | 125/7CH | Bird Tweet  | 1     |
| 30/1DH | Syn Bass 2  | 2     | 62/3DH | Elec Gtr 1 | 4     | 94/5DH | Fr Horn 2  | 2     | 126/7DH | OneNoteJam  | 4     |
| 31/1EH | Syn Bass 3  | 2     | 63/3EH | Elec Gtr 2 | 3     | 95/5EH | Tuba       | 2     | 127/7EH | WaterBells  | 3     |
| 32/1FH | Syn Bass 4  | 1     | 64/3FH | Sitar      | 4     | 96/5FH | Brs Sect 1 | 4     | 128/7FH | JungleTune  | 4     |

PROG # : MIDI Program Change Number (decimal indication / hexadecimal indication).

Pt1 # : The number of partials used for a sound.

## (2) Sounds of the Rhythm Part

The following rhythm sounds and SE are assigned to note numbers of the Rhythm Part:

| Note Name(≠) | Tone name               | Pt(≠) | Pan | Left | Center | Right |
|--------------|-------------------------|-------|-----|------|--------|-------|
| B 1( 35/23H) | Acoustic Bass Drum *    | 1     | ><  |      | ●      |       |
| C 2( 36/24H) | Acoustic Bass Drum *    | 1     | ><  |      | ●      |       |
| C#2( 37/25H) | Rim Shot *              | 1     | <1  |      | ●      |       |
| D 2( 38/26H) | Acoustic Snare Drum *   | 1     | ><  |      | ●      |       |
| D#2( 39/27H) | Hand Clap *             | 1     | 1>  |      | ●      |       |
| E 2( 40/28H) | Electronic Snare Drum * | 1     | <1  |      | ●      |       |
| F 2( 41/29H) | Acoustic Low Tom *      | 1     | 1>  | ●    |        |       |
| F#2( 42/2AH) | Closed High Hat *       | 1     | <1  |      | ●      |       |
| G 2( 43/2BH) | Acoustic Low Tom *      | 1     | 4>  | ●    |        |       |
| G#2( 44/2CH) | Open High Hat 2 *       | 2     | <1  |      | ●      |       |
| A 2( 45/2DH) | Acoustic Middle Tom *   | 1     | 1>  |      | ●      |       |
| A#2( 46/2EH) | Open High Hat 1 *       | 2     | <1  |      | ●      |       |
| B 2( 47/2FH) | Acoustic Middle Tom *   | 1     | 1>  |      | ●      |       |
| C 3( 48/30H) | Acoustic High Tom *     | 1     | <4  |      |        | ●     |
| C#3( 49/31H) | Crash Cymbal *          | 2     | <1  |      | ●      |       |
| D 3( 50/32H) | Acoustic High Tom *     | 1     | <4  |      |        | ●     |
| D#3( 51/33H) | Ride Cymbal *           | 1     | 1>  |      | ●      |       |
| E 3( 52/34H) |                         |       |     |      |        |       |
| F 3( 53/35H) |                         |       |     |      |        |       |
| F#3( 54/36H) | Tambourine *            | 1     | 2>  |      | ●      |       |
| G 3( 55/37H) |                         |       |     |      |        |       |
| G#3( 56/38H) | Cowbell *               | 1     | ><  |      | ●      |       |
| A 3( 57/39H) |                         |       |     |      |        |       |
| A#3( 58/3AH) |                         |       |     |      |        |       |
| B 3( 59/3BH) |                         |       |     |      |        |       |
| C 4( 60/3CH) | High Bongo *            | 1     | <5  |      |        | ●     |
| C#4( 61/3DH) | Low Bongo *             | 1     | <3  |      |        | ●     |
| D 4( 62/3EH) | Mute High Conga *       | 1     | 1>  |      | ●      |       |
| D#4( 63/3FH) | High Conga *            | 1     | 2>  |      | ●      |       |
| E 4( 64/40H) | Low Conga *             | 1     | 3>  | ●    |        |       |
| F 4( 65/41H) | High Timbale *          | 1     | ><  |      | ●      |       |
| F#4( 66/42H) | Low Timbale *           | 1     | <2  |      |        | ●     |
| G 4( 67/43H) | High Agogo *            | 1     | <5  |      |        | ●     |
| G#4( 68/44H) | Low Agogo *             | 1     | <5  |      |        | ●     |
| A 4( 69/45H) | Cabasa *                | 1     | 2>  |      | ●      |       |
| A#4( 70/46H) | Maracas *               | 1     | <3  |      |        | ●     |
| B 4( 71/47H) | Short Whistle *         | 2     | 2>  |      | ●      |       |
| C 5( 72/48H) | Long Whistle *          | 2     | 2>  |      | ●      |       |
| C#5( 73/49H) | Quijada *               | 3     | 3>  |      | ●      |       |
| D 5( 74/4AH) |                         |       |     |      |        |       |
| D#5( 75/4BH) | Claves *                | 1     | 5>  | ●    |        |       |

| Note Name(=)  | Tone name  | Ptl# | Pan | Left | Center | Right |
|---------------|------------|------|-----|------|--------|-------|
| E 5( 76/4C11) | Laughing   | 1    | ><  |      | ●      |       |
| F 5( 77/4D11) | Screaming  | 1    | ><  |      | ●      |       |
| F#5( 78/4E11) | Punch      | 1    | ><  |      | ●      |       |
| G 5( 79/4F11) | Heartbeat  | 1    | ><  |      | ●      |       |
| G#5( 80/5011) | Footsteps1 | 1    | ><  |      | ●      |       |
| A 5( 81/5111) | Footsteps2 | 1    | ><  |      | ●      |       |
| A#5( 82/5211) | Applause   | 3    | ><  |      | ●      |       |
| B 5( 83/5311) | Creaking   | 1    | ><  |      | ●      |       |
| C 6( 84/5411) | Door       | 1    | ><  |      | ●      |       |
| C#6( 85/5511) | Scratch    | 4    | ><  |      | ●      |       |
| D 6( 86/5611) | Windchime  | 2    | ><  |      | ●      |       |
| D#6( 87/5711) | Engine     | 2    | ><  |      | ●      |       |
| E 6( 88/5811) | Car-stop   | 1    | ><  |      | ●      |       |
| F 6( 89/5911) | Car-pass   | 4    | ><  |      | ●      |       |
| F#6( 90/5A11) | Crash      | 1    | ><  |      | ●      |       |
| G 6( 91/5B11) | Siren      | 2    | ><  |      | ●      |       |
| G#6( 92/5C11) | Train      | 2    | ><  |      | ●      |       |
| A 6( 93/5D11) | Jet        | 1    | ><  |      | ●      |       |
| A#6( 94/5E11) | Helicopter | 4    | ><  |      | ●      |       |
| B 6( 95/5F11) | Starship   | 4    | ><  |      | ●      |       |
| C 7( 96/6011) | Pistol     | 2    | ><  |      | ●      |       |
| C#7( 97/6111) | Machinegun | 2    | ><  |      | ●      |       |
| D 7( 98/6211) | Lasergun   | 2    | ><  |      | ●      |       |
| D#7( 99/6311) | Explosion  | 1    | ><  |      | ●      |       |
| E 7(100/6411) | Dog        | 1    | ><  |      | ●      |       |
| F 7(101/6511) | Horse      | 2    | ><  |      | ●      |       |
| F#7(102/6611) | Birds      | 4    | ><  |      | ●      |       |
| G 7(103/6711) | Rain       | 4    | ><  |      | ●      |       |
| G#7(104/6811) | Thunder    | 3    | ><  |      | ●      |       |
| A 7(105/6911) | Wind       | 3    | ><  |      | ●      |       |
| A#7(106/6A11) | Waves      | 4    | ><  |      | ●      |       |
| B 7(107/6B11) | Stream     | 1    | ><  |      | ●      |       |
| C 8(108/6C11) | Bubble     | 3    | ><  |      | ●      |       |

Ptl # : The number of Partial used for a sound. Pan : Pan value

\* Pan determines the sound positioning of stereo output. SE (after Laughing) sounds are all set to the center panning, but some sounds are played in different panning.

\* The number of Partial means the partials needed to play a note of the Tone.

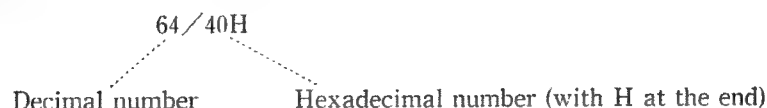
\* The sounds marked with ignore the Note Off messages (No sustain).

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## 5. Control via MIDI

The following explains the MIDI messages that the CM-32L uses and how to use the messages.

\* The MIDI messages indicate decimal number and hexadecimal number. You may use either of them depending on the MIDI device you use.



### *(1)MIDI Channel of each Part*

The MIDI channels of each Part of the CM-32L is set as shown below. You must set the transmit channel of the external MIDI device to the receive channel of the relevant Part.

| Part        | MIDI Receive ch |
|-------------|-----------------|
| 1           | 2               |
| 2           | 3               |
| 3           | 4               |
| 4           | 5               |
| 5           | 6               |
| 6           | 7               |
| 7           | 8               |
| 8           | 9               |
| Rhythm Part | 10              |

### *(2)MIDI Messages that the individual Part can receive*

Each Part can receive the following MIDI messages:

#### ●Note Messages

Note messages are for playing the keyboard. In the Rhythm Part, various different drum voices and SE can be played.

#### ●Pitch Bender Messages

Pitch Bender messages control the Pitch Bend lever or Pitch Bend wheel, changing the pitch continuously.

#### ●Program Change Messages

These are for changing sounds. The sounds in the Part that receives Program Change messages will change depending on the received Program Change number. (The Program Change messages are ignored in the Rhythm Part.)

\* Roland used Program Change numbers 1 to 128, but some software units or sequencers use 0 to 127 numbers. So please be careful.



## ●Control Change Messages

These are for controlling various parameters and functions. Each Control number has its own function. The CM-32L can receive the following Control Change messages:

Modulation (Control Number : 1/01H)

This controls the depth of vibrato effect.

Data Entry (Control Number : 6/06H)

This is used for setting the RPN.

Volume (Control Number : 7/07H)

This controls the volume of each part, adjusting the volume balance between Parts. The actual volume is determined by the value of the expression (Control Number 11), volume (Control Number 7) and Master Volume (Exclusive messages) and the position of the Volume control knob.

Pan (Control Number : 10/0AH)

This sets the sound positioning of stereo output. (This information is ignored in the Rhythm Part.)

15 levels are normally valid for the pan value of the CM-32L, but only 8 levels are valid when you use a certain sound.

|         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 7 >     | 6 >     | 5 >     | 4 >     | 3 >     | 2 >     | 1 >     | > <     | < 1     | < 2     | < 3     | < 4     | < 5     | < 6     | < 7     |
| 7 >     | 5 >     |         | 3 >     |         | 1 >     |         | < 1     |         | < 3     |         | < 5     |         | < 7     |         |
| 119-127 | 111-118 | 102-110 | 94-101  | 85-93   | 77-84   | 68-76   | 60-67   | 51-59   | 43-50   | 34-42   | 26-33   | 17-25   | 9-16    | 0-8     |
| 77H-7FH | 6FH-76H | 66H-6EH | 5EH-65H | 55H-5DH | 4DH-54H | 44H-4CH | 3CH-43H | 33H-3BH | 2BH-32H | 22H-2AH | 1AH-21H | 11H-19H | 09H-10H | 00H-08H |

Expression (Control Number : 11/0BH)

This controls the volume of each part. The actual volume is determined by the value of the expression (Control Number 11), volume (Control Number 7) and Master Volume (Exclusive messages) and the position of the Volume Control knob.

Hold 1 (Control Number : 64/40H)

This sustains the sound currently played, just like a damper pedal of a piano.

RPN (Control Number : 100 & 101/64H & 65H)

RPN stands for Registered Parameter Number. In the CM-32L, the bender range of each Part can be controlled with the RPN number 0, Pitch Bend Sensitivity.

Reset All Controllers (Control Number : 121/79H)

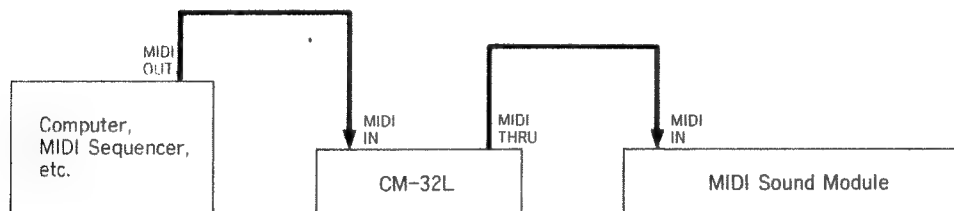
This returns the Modulation, Expression, Hold 1 and Pitch Bender parameters to the default settings. The Part received this message will be set as shown below:

|              |           |        |
|--------------|-----------|--------|
| Modulation   | 0/00H     | Off    |
| Expression   | 127/7FH   | Max.   |
| Hold 1       | 0/00H     | Off    |
| Pitch Bender | ± 0/2000H | Center |

### (3)Advanced Control via MIDI

#### ●Using another MIDI sound module

If you wish to extend the number of sounds using another MIDI sound module, make connections as follows. Set the MIDI receive channel of the connected sound module to a number other than the MIDI receive channel used for the CM-32L (channels 1, 11 - 16).



#### ●Bender Range Control with RPN

The CM-32L allows you to control the bender range of each Part using the RPN (Registered Parameter Number).

To do that, send Control Change messages from an external MIDI device in the sequence shown below :

- ① RPN MSB (Control Number : 100/64H) 0/00H
- ② RPN LSB (Control Number : 101/65H) 0/00H
- ③ Data Entry (Control Number : 6/06H) vv

\* vv is the value of the bender range to be set. It can be set in semi-tone steps within 2 octaves (0 - 24/00H - 18H).

<Example> To set the bender range of Part 4 (MIDI channel 5) to 12 (1 octave):

|             | MIDI ch | Control Number | Data   | MIDI Message  |
|-------------|---------|----------------|--------|---------------|
| ①RPN MSB    | 5       | 100/64H        | 0/00H  | B4H, 64H, 00H |
| ②RPN LSB    | 5       | 101/65H        | 0/00H  | B4H, 65H, 00H |
| ③Data Entry | 5       | 6/06H          | 12/0CH | B4H, 06H, 0CH |

\* Some types of MIDI sequencer transmits Control Change numbers of the same step (timing) in the sequence of smaller number to larger number. If you use this type of sequencer, be sure to set it so that the Control Change will be sent in the sequence of RPN MSB - RPN LSB - Data Entry by sifting the position of the RPN forward, etc.

#### ●Control using the Exclusive Messages

Exclusive messages are messages exclusive to a particular manufacturer, such as sound data and setup data. Various parameters can be controlled using the Exclusive messages.

For details, see the MIDI Implementation at the back of this owner's manual.

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## 6. Default Settings at Power-on

The CM-32L is default to the following values. (The programs you have made will be erased when the unit is switched off.)

|             | Sound       | Pan  | Volume  | Expression |
|-------------|-------------|------|---------|------------|
| Part 1      | SlapBass 1  | ><   | 100/64H | 127/7FH    |
| Part 2      | Str Sect 1  | ><   | 100/64H | 127/7FH    |
| Part 3      | Brs Sect 1  | ><   | 100/64H | 127/7FH    |
| Part 4      | Sax 1       | ><   | 100/64H | 127/7FH    |
| Part 5      | Ice Rain    | <4   | 100/64H | 127/7FH    |
| Part 6      | ElecPiano 1 | 7>   | 100/64H | 127/7FH    |
| Part 7      | Bottleblow  | <7   | 100/64H | 127/7FH    |
| Part 8      | Orch Hit    | 7>   | 100/64H | 127/7FH    |
| Rhythm Part | -----       | ---- | 100/64H | 127/7FH    |

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## 7. Maximum Voices

As previously explained in "3. Structure of the CM-32L", a sound is made of some Partials. Because the CM-32L produces sounds using Partials, the maximum voices that it can produce simultaneously will vary depending on the number of Partials used for the sound. The following explains the relation between the Partial and the maximum voices of the CM-32L.

### *(1)Partials and the maximum voices*

The CM-32L can play any sound in any Part within 32 voices (Partials). For example, if you play three sounds which are made of two Partials, six Partials will be used altogether( $2 \text{ Partials} \times 3$ ). In other words, when the CM-32L is used as a multi timbral sound module, it uses (the number of Partials assigned to Part 1)  $\times$  (the number of voices currently playing in Part 1), that is, the total number of Partials used in each Part. In the Rhythm Part, the number of Partial used in each rhythm sound is different, therefore, count the total number of Partials used for the rhythm sound currently playing.

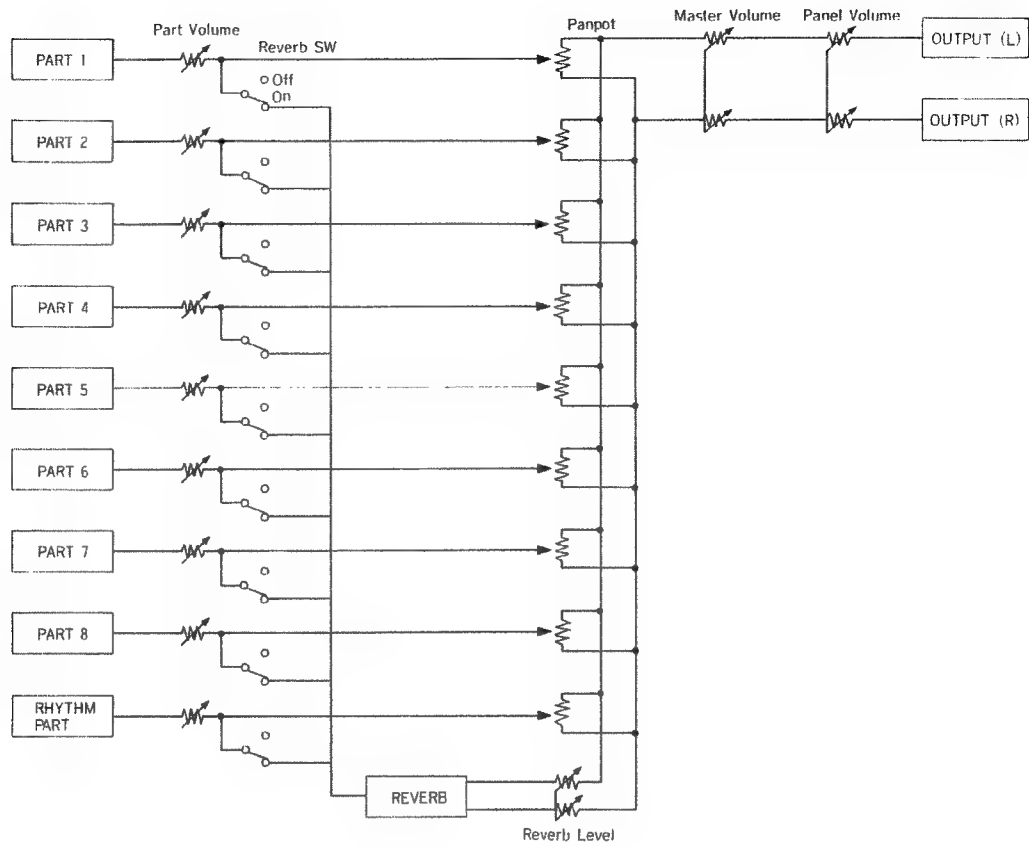
### *(2)Partial Reserve*

The CM-32L can play any sound in any Part within 32 voices (Partials). However, when you try to use more than 32 Partials, the Partial Reserve function sets the number of Partials which can be used for a certain Part prior to the other Parts. In other words, even when more key messages than reserved are sent, they will be put to work in the principal Part without being cut.

The Partial Reserve of the CM-32L is preprogrammed as shown below. The number of the Partials of each Part represents the number of Partials which can be reserved on top of the usual 32 Partials. You may consider the Partial Reserve then determine what phrases should be played in what Part.

|             |    |
|-------------|----|
| Part 1      | 2  |
| Part 2      | 10 |
| Part 3      | 6  |
| Part 4      | 4  |
| Part 5      | 3  |
| Part 6      | 0  |
| Part 7      | 0  |
| Part 8      | 0  |
| Rhythm Part | 6  |

## ■ CM-32L Block Diagram



## Roland Exclusive Messages

### 1 Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV) :

| Byte   | Description              |
|--------|--------------------------|
| F0H    | Exclusive status         |
| 41H    | Manufacturer ID (Roland) |
| DEV    | Device ID                |
| MDL    | Model ID                 |
| CMD    | Command ID               |
| [BODY] | Main data                |
| F7H    | End of exclusive         |

#### # MIDI status : F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufacturer - ID immediately after F0H (MIDI version 1.0).

#### # Manufacturer - ID : 41H

The Manufacturer - ID identifies the manufacturer of a MIDI instrument that triggers an exclusive message. Value 41H represents Roland's Manufacturer - ID.

#### # Device - ID : DEV

The Device - ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H - 0FH, a value smaller by one than that of a basic channel, but value 00H - 1FH may be used for a device with multiple basic channels.

#### # Model - ID : MDL

The Model - ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model - ID if they handle similar data.

The Model - ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model - IDs, each representing a unique model :

01H  
02H  
03H  
00H, 01H  
00H, 02H  
00H, 00H, 01H

#### # Command - ID : CMD

The Command - ID indicates the function of an exclusive message. The Command - ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command - IDs, each representing a unique function :

01H  
02H  
03H  
00H, 01H  
00H, 02H  
00H, 00H, 01H

#### # Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model - ID and Command - ID.

### 2 Address - mapped Data Transfer

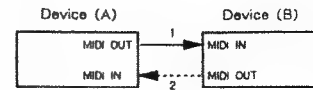
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory - resident records - - waveform and tone data, switch status, and parameters, for example - - to specific locations in a machine - dependent address space, thereby allowing access to data residing at the address a message specifies.

Address - mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures : one - way transfer and handshake transfer.

#### # One - way transfer procedure (See Section 3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

##### Connection Diagram

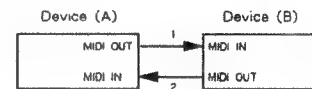


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

#### # Handshake - transfer procedure (See Section 4 for details.)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

##### Connection Diagram



Connection at points 1 and 2 is essential.

#### Notes on the above two procedures

\*There are separate Command - IDs for different transfer procedures.

\*Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device - ID and Model ID, and are ready for communication.

### 3 One - way Transfer Procedure

This procedure sends out data all the way until it stops and is used when the messages are so short that answerbacks need not be checked.

For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20 milliseconds in between.

#### Types of Messages

| Message        | Command ID |
|----------------|------------|
| Request data 1 | RQ1 (11H)  |
| Data set 1     | DT1 (12H)  |

#### # Request data = 1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

| Byte | Description              |
|------|--------------------------|
| F0H  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 11H  | Command ID               |
| aaH  | Address MSB              |
| ...  | ...                      |
| ...  | LSB                      |
| ssH  | Size MSB                 |
| ...  | ...                      |
| ...  | LSB                      |
| sum  | Check sum                |
| F7H  | End of exclusive         |

- \*The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
- \*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- \*The same number of bytes comprises address and size data, which, however, vary with the Model - ID.
- \*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

#### ≡ Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address - dependent order.

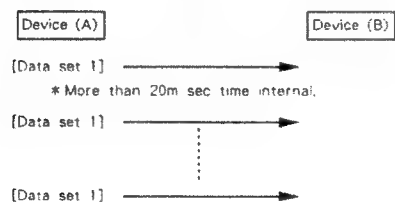
The MIDI standards inhibit non - real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "soft - through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive                |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 12H  | Command ID               |
| aaH  | Address MSB              |
| ...  | ...                      |
| ddH  | LSB                      |
| ...  | ...                      |
| sum  | Data                     |
| ...  | ...                      |
| sum  | Check sum                |
| F7H  | End of exclusive         |

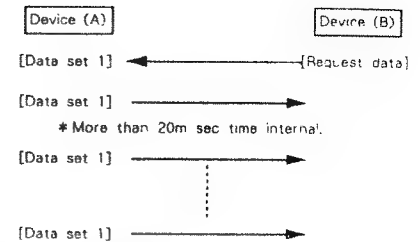
- \*A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
- \*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- \*The number of bytes comprising address data varies from one Model - ID to another.
- \*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

#### ≡ Example of Message Transactions

- Device A sending data to Device B  
Transfer of a DT1 message is all that takes place.



- Device B requesting data from Device A  
Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



#### 4 Handshake - Transfer Procedure

Handshaking is an interactive process where two devices exchange error checking signals before a message transaction takes place, thereby increasing data reliability. Unlike one - way transfer that inserts a pause between message transactions, handshake transfer allows much speedier transactions because data transfer starts once the receiving device returns a ready signal.

When it comes to handling large amounts of data - sampler waveforms and synthesizer tones over the entire range, for example - across a MIDI interface, handshaking transfer is more efficient than one - way transfer.

##### Types of Messages

| Message             | Command ID |
|---------------------|------------|
| Want to send data   | WSD (40H)  |
| Request data        | RQD (41H)  |
| Data set            | DAT (42H)  |
| Acknowledge         | ACK (43H)  |
| End of data         | EOD (45H)  |
| Communication error | ERR (4EH)  |
| Rejection           | RJC (4FH)  |

#### ≡ Want to send data : WSD (40H)

This message is sent out when data must be sent to a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of the data to be sent.

On receiving a WSD message, the remote device checks its memory for the specified data address and size which will satisfy the request. If it finds them and is ready for communication, the device will return an "Acknowledge (ACK)" message.

(Otherwise, it will return a "Rejection (RJC)" message.

| Byte | Description              |
|------|--------------------------|
| FOH  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 40H  | Command ID               |
| aaH  | Address MSB              |
| ...  | ...                      |
| ssH  | LSB                      |
| ...  | ...                      |
| ssH  | Size MSB                 |
| ...  | ...                      |
| ...  | LSB                      |
| sum  | Check sum                |
| F7H  | End of exclusive         |

- \*The size of the data to be sent does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the data should reside.
- \*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- \*The same number of bytes comprises address and size data, which, however, vary with the Model - ID.
- \*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

#### # Request data : RQD (41H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQD message, the remote device checks its memory for the data address and size which satisfy the request. If it finds them and is ready for communication, the device will transmit a "Data set (DAT)" message, which contains the requested data. Otherwise, it will return a "Rejection (RJC)" message.

| Byte | Description              |
|------|--------------------------|
| F0H  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 41H  | Command ID               |
| aaH  | Address MSB              |
| ...  | ...                      |
| ...  | LSB                      |
| ssH  | Size MSB                 |
| ...  | ...                      |
| ...  | LSB                      |
| sum  | Check sum                |
| F7H  | End of exclusive         |

- \*The size of the requested data does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the requested data resides.
- \*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- \*The same number of bytes comprises address and size data, which, however, vary with the Model - ID.
- \*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

#### # Data set : DAT (42H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, the message can convey the starting address of one or more data as well as a series of data formatted in an address dependent order.

Although the MIDI standards inhibit non - real time messages from interrupting an exclusive one, some devices support a "soft - through" mechanism for such interrupts. To maintain compatibility with such devices, Roland has limited the DAT to 256 bytes so that an excessively long message is sent out in separate segments.

| Byte | Description              |
|------|--------------------------|
| F0H  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 42H  | Command ID               |
| aaH  | Address MSB              |
| ...  | ...                      |
| ...  | LSB                      |
| ddH  | Data                     |
| ...  | ...                      |
| ...  | ...                      |
| sum  | Check sum                |
| F7H  | End of exclusive         |

- \*A DAT message is capable of providing only the valid data among those specified by an RQD or WSD message.
- \*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- \*The number of bytes comprising address data varies from one model ID to another.
- \*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

#### # Acknowledge : ACK (43H)

This message is sent out when no error was detected on reception of a WSD, DAT, "End of data (EOD)", or some other message and a requested setup or action is complete. Unless it receives an ACK message, the device at the other end will not proceed to the next operation.

| Byte | Description              |
|------|--------------------------|
| F0H  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 43H  | Command ID               |
| F7H  | End of exclusive         |

#### # End of data : EOD (45H)

This message is sent out to inform a remote device of the end of a message. Communication, however, will not come to an end unless the remote device returns an ACK message even though an EOD message was transmitted.

| Byte | Description              |
|------|--------------------------|
| F0H  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 45H  | Command ID               |
| F7H  | End of exclusive         |

#### # Communications error : ERR (4EH)

This message warns the remote device of a communications fault encountered during message transmission due, for example, to a checksum error. An ERR message may be replaced with a "Rejection (RJC)" one, which terminates the current message transaction in midstream.

When it receives an ERR message, the sending device may either attempt to send out the last message a second time or terminate communication by sending out an RJC message.

| Byte | Description              |
|------|--------------------------|
| F0H  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 4EH  | Command ID               |
| F7H  | End of exclusive         |



## # Rejection : RJC (4FH)

This message is sent out when there is a need to terminate communication by overriding the current message. An RJC message will be triggered when :

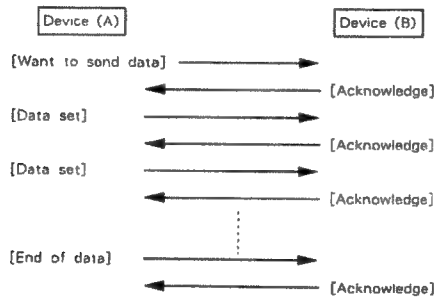
- a WSD or RQD message has specified an illegal data address or size.
- the device is not ready for communication.
- an illegal number of addresses or data has been detected.
- data transfer has been terminated by an operator.
- a communications error has occurred.

An ERR message may be sent out by a device on either side of the interface. Communication must be terminated immediately when either side triggers an ERR message.

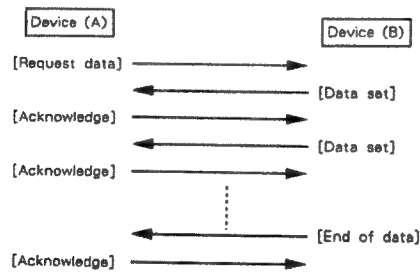
| Byte | Description              |
|------|--------------------------|
| F0H  | Exclusive status         |
| 41H  | Manufacturer ID (Roland) |
| DEV  | Device ID                |
| MDL  | Model ID                 |
| 4FH  | Command ID               |
| F7H  | End of exclusive         |

## # Example of Message Transactions

### ● Data transfer from device (A) to device (B).

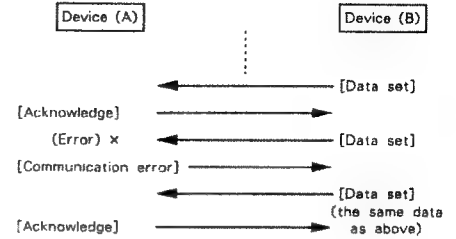


### ● Device (A) requests and receives data from device (B).

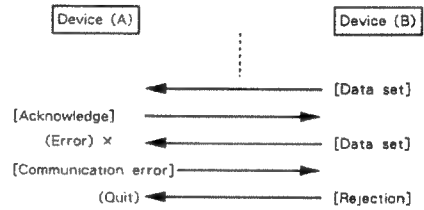


### ● Error occurs while device (A) is receiving data from device (B).

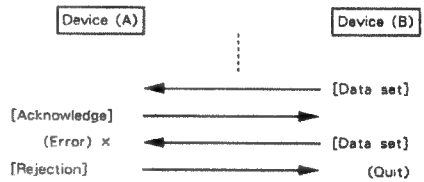
#### 1) Data transfer from device (A) to device (B).



#### 2) Device (B) rejects the data re-transmitted, and quits data transfer.



#### 3) Device (A) immediately quits data transfer.



**1 TRANSMITTED DATA****■ Exclusive****Status**

F0H : System exclusive

F7H : EOX (End Of Exclusive)

For details, see Sections 3 and 4, and Roland Exclusive Messages.

**2. RECOGNIZED RECEIVE DATA****■ Note event****● Note off**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| 8nH           | kkH           | vvH          |
| 9nH           | kkH           | 00H          |

kk = note number      00H - 7FH ( 0 - 127 )  
 vv = velocity          ignored  
 n = MIDI Channel      0H - FH ( 1 - 16 )

A tone whose envelope mode is "NO SLS" ignores Note off message.

**● Note on**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| 9nH           | kkH           | vvH          |

kk = note number      00H - 7FH ( 0 - 127 )  
 vv = velocity          01H - 7FH ( 1 - 127 )  
 n = MIDI Channel      0H - FH ( 1 - 16 )

Part 1 8 : Note numbers outside of the range 12 - 108 are transposed to the nearest octave inside the range.

Rhythm Part : Note numbers outside of the range 24 - 108 are ignored.

**■ Control change****● Modulation Depth**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 01H           | vvH          |

vv = Modulation depth      00H - 7FH ( 0 - 127 )  
 n = MIDI Channel          0H - FH ( 1 - 16 )

**● Data Entry**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 08H           | vvH          |

vv = Value of a parameter specified by RPN. (See description in RPN MSB.)  
 n = MIDI Channel          0H - FH ( 1 - 16 )

**● Main Volume**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 07H           | vvH          |

vv = Volume Value          00H - 7FH ( 0 - 127 )  
 n = MIDI Channel          0H - FH ( 1 - 16 )

Controls the volume of a Part accessible through the received MIDI channel. The maximum volume is determined by Master volume and Expression message.

**● Panpot**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 0AH           | vvH          |

vv = Panpot Value          00H - 7FH ( 0 - 127 )  
 n = MIDI Channel          0H - FH ( 1 - 16 )

Orientation of sound is as follows.

127 = LEFT, 64 = CENTER, 0 = RIGHT

This information is ignored in the Rhythm Part.

**● Expression**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 0BH           | vvH          |

vv = Expression            00H - 7FH ( 0 - 127 )  
 n = MIDI Channel          0H - FH ( 1 - 16 )

Controls the volume of a Part accessible through the received MIDI channel. The maximum volume is determined by Master volume and Main Volume message.

**● Hold - 1**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 40H           | vvH          |

vv = 00H - 3FH : off  
 vv = 40H - 7FH : on  
 n = MIDI Channel          0H - FH ( 1 - 16 )

**● RPN LSB**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 64H           | vvH          |

vv = The lower byte of a parameter number controlled by RPN. (Refer to RPN MSB.)  
 n = MIDI Channel          0H - FH ( 1 - 16 )

**● RPN MSB**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 65H           | vvH          |

vv = The upper byte of a parameter number controlled by RPN.  
 n = MIDI Channel          0H - FH ( 1 - 16 )

Using MIDI RPN, CM-32L parameters can be controlled by Control change message. RPN MSB and LSB specify the parameter to be controlled while Data entry sets the parameter value.

Effective RPN to CM-32L is Bender range.

| RPN | Data Entry | Description                         |
|-----|------------|-------------------------------------|
| MSB | LSB        |                                     |
| 00H | 00H        | vvH                                 |
|     |            | Bender Range                        |
|     |            | vv = 0 - 24                         |
|     |            | Unit in semitone, 2 octaves maximum |

**● Reset All Controllers**

| <u>Status</u> | <u>Second</u> | <u>Third</u> |
|---------------|---------------|--------------|
| BnH           | 79H           | 00H          |

n = MIDI Channel          0H - FH ( 1 - 16 )

Sets each of the following controls as follows.

| Controller          | setting     |
|---------------------|-------------|
| Modulation Depth    | MIN ( 0 )   |
| Expression          | MAX ( 127 ) |
| Hold 1              | OFF ( 0 )   |
| Pitch Bender Change | CENTER      |

## ■ Program change

| Status            | Second               |
|-------------------|----------------------|
| CnH               | ppH                  |
| pp = Patch Number | 0H - 7FH ( 1 - 128 ) |
| n = MIDI Channel  | 0H - FH ( 1 - 16 )   |

Program change information is used to change Patches.  
This information is ignored in the Rhythm Part.

## ■ Pitch Bender change

| Status                                        | Second                | Third |
|-----------------------------------------------|-----------------------|-------|
| EnH                                           | BH                    | mmH   |
| B = Pitch Bender change value ( Lower byte )  | 00H - 7FH ( 0 - 127 ) |       |
| mm = Pitch Bender change value ( Upper byte ) | 00H - 7FH ( 0 - 127 ) |       |
| n = MIDI Channel                              | 0H - FH ( 1 - 16 )    |       |

## ■ Mode message

### ● All notes off

| Status           | Second             | Third |
|------------------|--------------------|-------|
| BnH              | 7BH                | 00H   |
| n = MIDI Channel | 0H - FH ( 1 - 16 ) |       |

Turns off all notes that have been turned on by MIDI Note on.

### ● OMNI OFF

| Status           | Second             | Third |
|------------------|--------------------|-------|
| BnH              | 7CH                | 00H   |
| n = MIDI Channel | 0H - FH ( 1 - 16 ) |       |

Recognized as only All notes off.  
CM - 32L remains in mode 3 ( omni off, poly ).

### ● OMNI ON

| Status           | Second             | Third |
|------------------|--------------------|-------|
| BnH              | 7DH                | 00H   |
| n = MIDI Channel | 0H - FH ( 1 - 16 ) |       |

Recognized as only All notes off.  
CM - 32L remains in mode 3 ( omni off, poly ).

### ● MONO

| Status                          | Second             | Third |
|---------------------------------|--------------------|-------|
| BnH                             | 7EH                | mmH   |
| mm = MONO Channel range ignored |                    |       |
| n = MIDI Channel                | 0H - FH ( 1 - 16 ) |       |

Recognized as only All notes off.  
CM - 32L remains in mode 3 ( omni off, poly ).

### ● POLY

| Status           | Second             | Third |
|------------------|--------------------|-------|
| BnH              | 7FH                | 00H   |
| n = MIDI Channel | 0H - FH ( 1 - 16 ) |       |

Recognized as only All notes off.  
CM - 32L remains in mode 3 ( omni off, poly ).

## ■ Exclusive

| Status                       |
|------------------------------|
| F0H : System Exclusive       |
| F7H : EOX (End Of Exclusive) |

Using exclusive message, a set of parameters for a timbre or individual parameters in a patch or timbre can be transferred to CM - 32L.  
Refer to Roland Exclusive Messages and Sections 3 and 4.

## ■ Active sensing

| Status               |
|----------------------|
| FEH : Active Sensing |

Once receiving this message, the CM - 32L expects to accept status or data in sequence, at last within 300 msec intervals.  
If the unit fails to receive a message within 300 msec after previous one, it judges there is a problem somewhere in MIDI path, muting the current sound and setting each of controllers as below, then stopping 300 msec - interval monitoring of incoming signal.

| Controller          | setting     |
|---------------------|-------------|
| Modulation Depth    | MIR ( 0 )   |
| Expression          | MAX ( 127 ) |
| Hold 1              | OFF ( 0 )   |
| Pitch Bender Change | CENTER      |

## 3. EXCLUSIVE COMMUNICATION

Parameters for patches or timbres can be transferred to./from CM - 32L through Exclusive message. Model - ID # of CM - 32L is 16H.

In a system where more than one MIDI channel is assigned to CM - 32L, Unit # may be set to the CM - 32L instead of Device - ID # of a basic channel. The advantage of Unit # is that a specific part is made accessible independent of MIDI channel of that part.

Whether to use MIDI channel or Unit # depends on parameter address.  
CM - 32L recognizes MIDI channels 1 thru 16 and Unit # 17 as Device - ID #. Note that the actual Device - ID # is the number 1 less MIDI channel number or Unit #.

## ■ One way communication

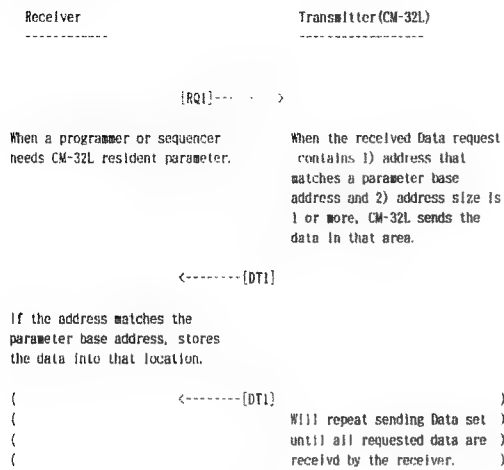
| Request Data 1 | RQ1 11H                      |
|----------------|------------------------------|
| Byte           | Description                  |
| F0H            | Exclusive status             |
| 41H            | Manufacturer's ID ( Roland ) |
| DEH            | Device ID                    |
| 16H            | Model ID                     |
| 11H            | Command ID ( RQ1 )           |
| aaH            | Address MSB * 3-1            |
| aaH            | Address                      |
| aaH            | Address LSB                  |
| ssH            | Size MSB                     |
| ssH            | Size                         |
| ssH            | Size LSB                     |
| sum            | Check sum                    |
| F7H            | EOX ( End Of Exclusive )     |

| Data set 1 | DT1 12H                      |
|------------|------------------------------|
| Byte       | Description                  |
| F0H        | Exclusive status             |
| 41H        | Manufacturer's ID ( Roland ) |
| DEH        | Device ID                    |
| 16H        | Model ID                     |
| 12H        | Command ID ( DT1 )           |
| aaH        | Address MSB * 3-1            |
| aaH        | Address                      |
| aaH        | Address LSB                  |
| ddH        | Data * 3-2                   |
| :          | :                            |
| sum        | Check sum                    |
| F7H        | EOX ( End Of Exclusive )     |

## ● Communication Sequence

CM-32L never requests data of the other party.

The following sequence applies to the other party that wants to get some parameters from CM-32L.



## ■ Handshaking communication

Want to send data WSD 40H

| Byte | Description                  |      |
|------|------------------------------|------|
| F0H  | Exclusive status             |      |
| 41H  | Manufacturer's ID ( Roland ) |      |
| DEH  | Device ID                    |      |
| 16H  | Model ID                     |      |
| 40H  | Command ID ( WSD )           |      |
| aaH  | Address MSB                  | *3-1 |
| aaH  | Address                      |      |
| aeH  | Address LSB                  |      |
| ssH  | Size MSB                     |      |
| ssH  | Size                         |      |
| ssH  | Size LSB                     |      |
| sum  | Check sum                    |      |
| F7H  | EOX ( End Of Exclusive )     |      |

Request data RQD 41H

| Byte | Description                  |      |
|------|------------------------------|------|
| F0H  | Exclusive status             |      |
| 41H  | Manufacturer's ID ( Roland ) |      |
| DEH  | Device ID                    |      |
| 16H  | Model ID                     |      |
| 41H  | Command ID ( RQD )           |      |
| aaH  | Address MSB                  | *3-1 |
| aaH  | Address                      |      |
| aeH  | Address LSB                  |      |
| ssH  | Size MSB                     |      |
| ssH  | Size                         |      |
| ssH  | Size LSB                     |      |
| sum  | Check sum                    |      |
| F7H  | EOX ( End Of Exclusive )     |      |

Data set

DAT 42H

| Byte | Description                  |      |
|------|------------------------------|------|
| F0H  | Exclusive status             |      |
| 41H  | Manufacturer's ID ( Roland ) |      |
| DEH  | Device ID                    |      |
| 16H  | Model ID                     |      |
| 42H  | Command ID ( DAT )           |      |
| aaH  | Address MSB                  | *3-1 |
| aaH  | Address                      |      |
| aeH  | Address LSB                  |      |
| ddH  | Data                         | *3-2 |
| :    | :                            |      |
| sum  | Check sum                    |      |
| F7H  | EOX ( End Of Exclusive )     |      |

Acknowledge

ACK 43H

| Byte | Description                  |  |
|------|------------------------------|--|
| F0H  | Exclusive status             |  |
| 41H  | Manufacturer's ID ( Roland ) |  |
| DEH  | Device ID                    |  |
| 16H  | Model ID                     |  |
| 43H  | Command ID ( ACK )           |  |
| F7H  | EOX ( End Of Exclusive )     |  |

End of data

EOD 46H

| Byte | Description                  |  |
|------|------------------------------|--|
| F0H  | Exclusive status             |  |
| 41H  | Manufacturer's ID ( Roland ) |  |
| DEH  | Device ID                    |  |
| 16H  | Model ID                     |  |
| 46H  | Command ID ( EOD )           |  |
| F7H  | EOX ( End Of Exclusive )     |  |

Communication error

ERR 4EH

| Byte | Description                  |  |
|------|------------------------------|--|
| F0H  | Exclusive status             |  |
| 41H  | Manufacturer's ID ( Roland ) |  |
| DEH  | Device ID                    |  |
| 16H  | Model ID                     |  |
| 4EH  | Command ID ( ERR )           |  |
| F7H  | EOX ( End Of Exclusive )     |  |

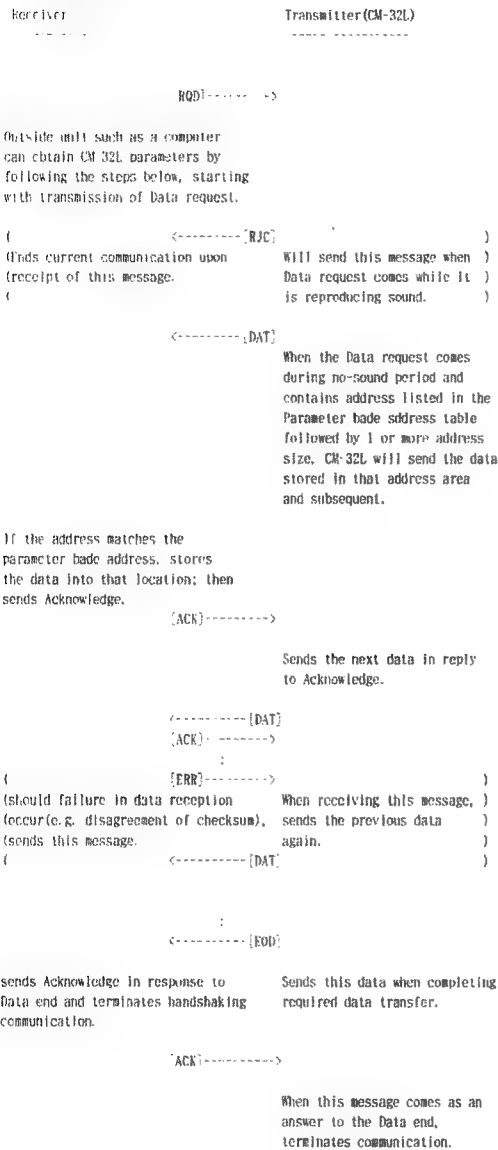
Rejection

RJC 4FH

| Byte | Description                  |  |
|------|------------------------------|--|
| F0H  | Exclusive status             |  |
| 41H  | Manufacturer's ID ( Roland ) |  |
| DEH  | Device ID                    |  |
| 16H  | Model ID                     |  |
| 4FH  | Command ID ( RJC )           |  |
| F7H  | EOX ( End Of Exclusive )     |  |

## ● Communication Sequence

CM-32L will never require any data of the other party. The following sequence can apply to the outside world where a unit wants to get CM-32L resident parameters.



\*3-1 Address and Address size must cover the memory location where data exist.

\*3-2 When coming data are for partial reserve of the system parameter, CM-32L will make these reserves effective only after receiving all the data.

## 4. PARAMETER ADDRESS MAP

Addresses are represented in 7-bit hexadecimal.

| Address           | MSB       | LSB       |
|-------------------|-----------|-----------|
| Binary            | 0aaa aaaa | 0bbb bbbb |
| 7-bit Hexadecimal | AA        | BB        |

The actual address of a parameter is a sum of the start address of each block and one or more offset address.

- \*4-1 Start address plus two offset addresses  
(in tables \*4-1 and \*4-1-1(\*4-1-2))
- \*4-2 Start address plus one offset address  
(in tables \*4-2)
- \*4-3 Start address plus two offset addresses  
(in tables \*4-3 and \*4-3-1)
- \*4-4 ~ \*4-7 Start address plus one offset address  
(in tables \*4-4 ~ \*4-7)

## ■Parameter base address

Temporary area (Accessed through each basic channel)

| Start address | Description                             |
|---------------|-----------------------------------------|
| 02 00 00      | Timbre Temporary Area (part 1 ~ 8) *4-1 |

Whole part (Accessible on UNIT#)

| Start address | Description                         |
|---------------|-------------------------------------|
| 03 00 00      | Patch Temporary Area (part 1) *4-2  |
| 03 00 10      | Patch Temporary Area (part 2)       |
| :             | :                                   |
| 03 00 60      | Patch Temporary Area (part 7)       |
| 03 00 70      | Patch Temporary Area (part 8)       |
| 03 01 00      | Patch Temporary Area (rhythm part)  |
| 03 01 10      | Rhythm Setup Temporary Area *4-3    |
| 04 00 00      | Timbre Temporary Area (part 1) *4-1 |
| 04 01 76      | Timbre Temporary Area (part 2)      |
| :             | :                                   |
| 04 0B 44      | Timbre Temporary Area (part 7)      |
| 04 0D 3A      | Timbre Temporary Area (part 8)      |
| 05 00 00      | Patch Memory #1 *4-4                |
| 05 00 08      | Patch Memory #2                     |
| :             | :                                   |
| 05 07 70      | Patch Memory #127                   |
| 05 07 78      | Patch Memory #128                   |
| 08 00 00      | Timbre Memory #1 *4-1               |
| 08 02 00      | Timbre Memory #2                    |
| :             | :                                   |
| 08 7C 00      | Timbre Memory #63                   |
| 08 7E 00      | Timbre Memory #64                   |
| 10 00 00      | System area *4-5                    |
| 40 00 00      | Write Request *4-6                  |
| 7F x x x      | All parameters Reset *4-7           |

Notes :

\*4-1 Timbre Temporary area / Timbre Memory

| Offset address | Description                               |
|----------------|-------------------------------------------|
| 00 00 00       | Common parameter *4-1-1                   |
| 00 00 0E       | Partial parameter (for Partial# 1) *4-1-2 |
| 00 00 48       | Partial parameter (for Partial# 2)        |
| 00 01 02       | Partial parameter (for Partial# 3)        |
| 00 01 3C       | Partial parameter (for Partial# 4)        |

#### \*4-1-1 Common Parameter

| Offset<br>address | Description                                    |
|-------------------|------------------------------------------------|
| 00 0000 aaaa      | TIMBRE NAME 1 32 - 127<br>(ASCII)              |
| 09 0000 aaaa      | TIMBRE NAME 10                                 |
| 0A 0000 aaaa      | Structure of Partial# 1 & 2 0 - 12<br>(1 - 13) |
| 0B 0000 aaaa      | Structure of Partial# 3 & 4 0 - 12<br>(1 - 13) |
| 0C 0000 aaaa      | PARTIAL MUTE 0 - 15<br>(0000 - 1111)           |
| 0D 0000 000a      | ENV MODE 0 - 1<br>(Normal, No sustain)         |
| Total size        | 00 00 0E                                       |

#### \*4-1-2 Partial Parameter

| Offset<br>address | Description                                                                                                 |
|-------------------|-------------------------------------------------------------------------------------------------------------|
| 00 00 0000 aaaa   | WG PITCH COARSE 0 - 96<br>(C1, C#1, - C9)                                                                   |
| 00 01 0000 aaaa   | WG PITCH FINE 0 - 100<br>(-50 - +50)                                                                        |
| 00 02 0000 aaaa   | WG PITCH KEYFOLLOW 0 - 16<br>(-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2) |
| 00 03 0000 000a   | WG PITCH BENDER SW 0 - 1<br>(OFF, ON)                                                                       |
| 00 04 0000 000a   | WG WAVEFORM/PCM BANK 0 - 3<br>(SQ1/1, SAW/1, SQU/2, SAW/2)                                                  |
| 00 05 0000 aaaa   | WG PCM WAVE # 0 - 127<br>(1 - 128)                                                                          |
| 00 06 0000 aaaa   | WG PULSE WIDTH 0 - 100                                                                                      |
| 00 07 0000 aaaa   | WG PW VELO SENS 0 - 14<br>(-7 - +7)                                                                         |
| 00 08 0000 aaaa   | P-ENV DEPTH 0 - 10                                                                                          |
| 00 09 0000 aaaa   | P-ENV VELO SENS 0 - 100                                                                                     |
| 00 0A 0000 000a   | P-ENV TIME KEYF 0 - 4                                                                                       |
| 00 0B 0000 aaaa   | P-ENV TIME 1 0 - 100                                                                                        |
| 00 0C 0000 aaaa   | P-ENV TIME 2 0 - 100                                                                                        |
| 00 0D 0000 aaaa   | P-ENV TIME 3 0 - 100                                                                                        |
| 00 0E 0000 aaaa   | P-ENV TIME 4 0 - 100                                                                                        |
| 00 0F 0000 aaaa   | P-ENV LEVEL 0 0 - 100<br>(-50 - +50)                                                                        |
| 00 10 0000 aaaa   | P-ENV LEVEL 1 0 - 100<br>(-50 - +50)                                                                        |
| 00 11 0000 aaaa   | P-ENV LEVEL 2 0 - 100<br>(-50 - +50)                                                                        |
| 00 12 0000 aaaa   | P-ENV SUSTAIN LEVEL 0 - 100<br>(-50 - +50)                                                                  |
| 00 13 0000 aaaa   | END LEVEL 0 - 100<br>(-50 - +50)                                                                            |
| 00 14 0000 aaaa   | P-LFO RATE 0 - 100                                                                                          |
| 00 15 0000 aaaa   | P-LFO DEPTH 0 - 100                                                                                         |
| 00 16 0000 aaaa   | P-LFO MOD SENS 0 - 100                                                                                      |
| 00 17 0000 aaaa   | TVF CUTOFF FREQ 0 - 100                                                                                     |
| 00 18 0000 aaaa   | TVF RESONANCE 0 - 30                                                                                        |
| 00 19 0000 aaaa   | TVF KEYFOLLOW 0 - 14<br>(-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2)              |
| 00 1A 0000 aaaa   | TVF BIAS POINT/DIR 0 - 127<br>(<1A - <7C >1A - >7C)                                                         |
| 00 1B 0000 aaaa   | TVF BIAS LEVEL 0 - 14<br>(-7 - +7)                                                                          |

|                 |                                                   |
|-----------------|---------------------------------------------------|
| 00 1C 0000 aaaa | TVF ENV DEPTH 0 - 100                             |
| 00 1D 0000 aaaa | TVF ENV VELO SENS 0 - 100                         |
| 00 1E 0000 000a | TVF ENV DEPTH KEYF 0 - 4                          |
| 00 1F 0000 aaaa | TVF ENV TIME KEYF 0 - 4                           |
| 00 20 0000 aaaa | TVF ENV TIME 1 0 - 100                            |
| 00 21 0000 aaaa | TVF ENV TIME 2 0 - 100                            |
| 00 22 0000 aaaa | TVF ENV TIME 3 0 - 100                            |
| 00 23 0000 aaaa | TVF ENV TIME 4 0 - 100                            |
| 00 24 0000 aaaa | TVF ENV TIME 5 0 - 100                            |
| 00 25 0000 aaaa | TVF ENV LEVEL 1 0 - 100                           |
| 00 26 0000 aaaa | TVF ENV LEVEL 2 0 - 100                           |
| 00 27 0000 aaaa | TVF ENV LEVEL 3 0 - 100                           |
| 00 28 0000 aaaa | TVF ENV SUSTAIN LEVEL 0 - 100                     |
| 00 29 0000 aaaa | TVA LEVEL 0 - 100                                 |
| 00 2A 0000 aaaa | TVA VELO SENS 0 - 100<br>(-50 - +50)              |
| 00 2B 0000 aaaa | TVA BIAS POINT 1 0 - 127<br>(<1A - <7C >1A - >7C) |
| 00 2C 0000 aaaa | TVA BIAS LEVEL 1 0 - 12<br>(-12 - 0)              |
| 00 2D 0000 aaaa | TVA BIAS POINT 2 0 - 127<br>(<1A - <7C >1A - >7C) |
| 00 2E 0000 aaaa | TVA BIAS LEVEL 2 0 - 12<br>(-12 - 0)              |
| 00 2F 0000 000a | TVA ENV TIME KEYF 0 - 4                           |
| 00 30 0000 000a | TVA ENV TIME V_FOLLOW 0 - 4                       |
| 00 31 0000 aaaa | TVA ENV TIME 1 0 - 100                            |
| 00 32 0000 aaaa | TVA ENV TIME 2 0 - 100                            |
| 00 33 0000 aaaa | TVA ENV TIME 3 0 - 100                            |
| 00 34 0000 aaaa | TVA ENV TIME 4 0 - 100                            |
| 00 35 0000 aaaa | TVA ENV TIME 5 0 - 100                            |
| 00 36 0000 aaaa | TVA ENV LEVEL 1 0 - 100                           |
| 00 37 0000 aaaa | TVA ENV LEVEL 2 0 - 100                           |
| 00 38 0000 aaaa | TVA ENV LEVEL 3 0 - 100                           |
| 00 39 0000 aaaa | TVA ENV SUSTAIN LEVEL 0 - 100                     |
| Total size      | 00 00 3A                                          |

#### Example of RQ1 and DT1 application - - - 1

Obtain Part 2 tone data from the temporary area by sending the following messages.

F0 41 10 16 11 04 01 76 00 01 76 0E F7

#### \*4-2 Patch temporary area

##### \*4-2-1 Patch temporary area (Part 1-B)

| Offset<br>address | Description                                           |
|-------------------|-------------------------------------------------------|
| 00 00 0000 00aa   | TIMBRE GROUP 0 - 3<br>(a, b, l, r)                    |
| 00 01 0000 aaaa   | TIMBRE NUMBER 0 - 63<br>(1 - 64)                      |
| 00 02 0000 aaaa   | KEY SHIFT 0 - 48<br>(-24 - +24)                       |
| 00 03 0000 aaaa   | FINE TUNE 0 - 100<br>(-50 - +50)                      |
| 00 04 0000 aaaa   | RENDER RANGE 0 - 24                                   |
| 00 05 0000 00aa   | ASSIGN MODE 0 - 3<br>(POLY 1, POLY 2, POLY 3, POLY 4) |
| 00 06 0000 000a   | REVERB SWITCH 0 - 1<br>(OFF, ON)                      |
| 00 07 0xxx xxxx   | dummy (Ignored if received)                           |
| 00 08 0000 aaaa   | OUTPUT LEVEL 0 - 100                                  |
| 00 09 0000 aaaa   | PANPOT 0 - 14<br>(R - L)                              |
| 00 0A 0xxx xxxx   | dummy (Ignored if received)                           |
| 00 0B 0xxx xxxx   | dummy (Ignored if received)                           |
| 00 0C 0xxx xxxx   | dummy (Ignored if received)                           |
| 00 0D 0xxx xxxx   | dummy (Ignored if received)                           |
| 00 0E 0xxx xxxx   | dummy (Ignored if received)                           |
| 00 0F 0xxx xxxx   | dummy (Ignored if received)                           |
| Total size        | 00 00 10                                              |

| Offset     | address   | Description                                            |
|------------|-----------|--------------------------------------------------------|
| 00 00      | 0XXX XXXX | dummy (ignored if received)                            |
| 00 01      | 0XXX XXXX | dummy (ignored if received)                            |
| 00 02      | 0XXX XXXX | dummy (ignored if received)                            |
| 00 03      | 0aaa aaaa | FINE TUNE 0 - 100<br>(-50 -50)                         |
| 00 04      | 0XXX XXXX | dummy (ignored if received)                            |
| 00 05      | 0000 00aa | ASSIGN MODE 0 3<br>(POLY 1, POLY 2,<br>POLY 3, POLY 4) |
| 00 06      | 0XXX XXXX | dummy (ignored if received)                            |
| 00 07      | 0XXX XXXX | dummy (ignored if received)                            |
| 00 08      | 0aaa aaaa | OUTPUT LEVEL 0 100                                     |
| 00 09      | 0XXX XXXX | dummy (ignored if received)                            |
| :          | :         | :                                                      |
| 03 0F      | 0xxx xxxx | dummy (ignored if received)                            |
| Total size |           | 00 00 10                                               |

| Offset<br>address | Description                 |        |
|-------------------|-----------------------------|--------|
| 00 00 00          | Rhythm Setup (for Key# 24)  | 04-3-1 |
| 00 00 04          | Rhythm Setup (for Key# 25)  |        |
| 00 00 08          | Rhythm Setup (for Key# 26)  |        |
| 00 00 0C          | Rhythm Setup (for Key# 27)  |        |
| 00 00 10          | Rhythm Setup (for Key# 28)  |        |
| :                 | :                           |        |
| :                 | :                           |        |
| :                 | :                           |        |
| 00 02 4C          | Rhythm Setup (for Key# 107) |        |
| 00 02 50          | Rhythm Setup (for Key# 108) |        |

| Offset     | address   | Description   |                               |
|------------|-----------|---------------|-------------------------------|
| 00 00      | 0aaa aaaa | TIMBRE        | 0 - 127<br>(r01 r64, r01 r64) |
| 00 01      | 0aaa aaaa | OUTPUT LEVEL  | 0 - 100                       |
| 00 02      | 0000 aaaa | PAN/POT       | 0 - 14<br>(R - L)             |
| 00 03      | 0000 000a | REVERB SWITCH | 0 - 1<br>(OFF, ON)            |
| Total size |           | 00 00 04      |                               |

| Offset<br>address | Description |                                                               |
|-------------------|-------------|---------------------------------------------------------------|
| 00 00             | 0000 00aa   | TIMBRE GROU P      0   3<br>(a, b, i, r)                      |
| 00 01             | 00aa 0aaa   | TIMBRE ALMBER      0 - 63                                     |
| 00 02             | 00aa 0aaa   | KEY SHIF T      0 - 48<br>(-24 - +24)                         |
| 00 03             | 0aaa 0aaa   | FINE TUNE      0 100<br>(-50 - +50)                           |
| 00 04             | 0000 0aaa   | BENDER RANGE      0 - 24                                      |
| 00 05             | 0000 00aa   | ASSIGN MODE      0   3<br>(POLY 1, POLY 2,<br>POLY 3, POLY 4) |
| 00 06             | 0000 000a   | REVERB SWITCH      0 - 1<br>(OFF, ON)                         |
| 00 07             | 0xxx xxxx   | dummy                                                         |
| Total size        | 00 00 00    |                                                               |

| offset<br>address |           | Description              |                                          |
|-------------------|-----------|--------------------------|------------------------------------------|
| 00 00             | 0aaa 3aaa | MASTER TUNE              | 0 127<br>(427.5Hz 452.6Hz)               |
| 00 01             | 0000 00aa | REVERB MODE              | 0 3<br>(Room, Hall,<br>Plate, Tap delay) |
| 00 02             | 0000 0aaa | REVERB TIME              | 0 - 7<br>(1 - 8)                         |
| 00 03             | 0000 0aaa | REVERB LEVEL             | 0 7                                      |
| 00 04             | 00aa 3aaa | PARTIAL RESERVE (Part 1) | 0 - 32                                   |
| 00 05             | 00aa 3aaa | PARTIAL RESERVE (Part 2) | 0 32                                     |
| 00 06             | 00aa 3aaa | PARTIAL RESERVE (Part 3) | 0 - 32                                   |
| 00 07             | 00aa 3aaa | PARTIAL RESERVE (Part 4) | 0 - 32                                   |
| 00 08             | 00aa 3aaa | PARTIAL RESERVE (Part 5) | 0 32                                     |
| 00 09             | 00aa 3aaa | PARTIAL RESERVE (Part 6) | 0 - 32                                   |
| 00 0A             | 00aa 3aaa | PARTIAL RESERVE (Part 7) | 0 32                                     |
| 00 0B             | 00aa 3aaa | PARTIAL RESERVE (Part 8) | 0 32                                     |
| 00 0C             | 00aa 3aaa | PARTIAL RESERVE (Part 9) | 0 32                                     |
| 00 0D             | 000a 3aaa | MIDI CHANNEL (Part 1)    | 0 - 16<br>(1 - 16, OFF)                  |
| 00 0E             | 000a 3aaa | MIDI CHANNEL (Part 2)    | 0 - 16<br>(1 16, OFF)                    |
| 00 0F             | 000a 3aaa | MIDI CHANNEL (Part 3)    | 0 - 16<br>(1 16, OFF)                    |
| 00 10             | 000a 3aaa | MIDI CHANNEL (Part 4)    | 0 16<br>(1 - 16, OFF)                    |
| 00 11             | 000a 3aaa | MIDI CHANNEL (Part 5)    | 0 16<br>(1 16, OFF)                      |
| 00 12             | 000a 3aaa | MIDI CHANNEL (Part 6)    | 0 16<br>(1 16, OFF)                      |
| 00 13             | 000a 3aaa | MIDI CHANNEL (Part 7)    | 0 16<br>(1 16, OFF)                      |
| 00 14             | 000a 3aaa | MIDI CHANNEL (Part 8)    | 0 16<br>(1 16, OFF)                      |
| 00 15             | 000a 3aaa | MIDI CHANNEL (Part 9)    | 0 16<br>(1 - 16, OFF)                    |
| 00 16             | 0aaa 3aaa | MASTER VOLUME            | 0 100                                    |
| Total size        |           | 00 00 17                 |                                          |

F0 41 10 16 12 10 00 04 08 0A 00 00 00 00 00 00 08 32 F7

#### \*4 - 6 Write Reques

This message simulates write switch on CM-32L, that is, CM-32L writes data of each part in the temporary area into internal memory. (Memory must be specified by two bytes addresses.) CM-32L will inform back of the writing result. No data in this area can be brought outside world by the use of RQ1 and RQD.

| Offset | address   | Description            |
|--------|-----------|------------------------|
| 00 00  | 00aa aaaa | Timbre Write (part 1)  |
| 00 01  | 0000 0000 | (Internal)             |
| 00 02  | 00aa aaaa | Timbre Write (part 2)  |
| 00 03  | 0000 0000 | (Internal)             |
| 00 0E  | 00aa aaaa | Timbre Write (part 8)  |
| 00 0F  | 0000 0000 | (Internal)             |
| 01 00  | 0aaa aaaa | Patch Write (part 1)   |
| 01 01  | 0000 0000 | (Internal)             |
| 01 02  | 0aaa aaaa | Patch Write (part 2)   |
| 01 03  | 0000 0000 | (Internal)             |
| 01 0E  | 0aaa aaaa | Patch Write (part 8)   |
| 01 0F  | 0000 0000 | (Internal)             |
| 10 00  | 0000 00aa | Result                 |
|        |           | 0 = Function Completed |
|        |           | 1 = Incorrect Mode     |
|        |           | 2 = Incorrect Mode     |
|        |           | 3 = Incorrect Mode     |

Example of RQ1 and DT1 application - - - 3

Direct CM-32L to write data of Part 3 in the temporary area into #76 by sending the byte string listed below.

F0 41 10 16 12 40 01 04 4B 00 70 F7

#### \*4 - 7 All Parameters Reset

All parameters will be initialized by sending data to this address. No data in this area can be brought outside world through MIDI exclusive message such as RQ1 and RQD.

| Address  | Block                    | Sub Block | Reference |
|----------|--------------------------|-----------|-----------|
| 02 00 00 | Timbre Temp. (Basic Ch)  | Common    | 4-1-1     |
|          |                          | Partial 1 | 4-1-2     |
|          |                          | Partial 2 |           |
|          |                          | Partial 3 |           |
|          |                          | Partial 4 |           |
| 03 00 00 | Patch Temp. (Unit#)      | Part 1    | 4-2       |
|          |                          | Part 2    |           |
|          |                          | Part 8    |           |
|          |                          | Part R    |           |
| 03 01 10 | Rhythm Setup Temp(Unit#) | Note# 24  | 4-3-1     |
|          |                          | Note# 25  |           |
|          |                          | Note# 107 |           |
|          |                          | Note# 108 |           |
| 04 00 00 | Timbre Temp. (Unit#)     | Part 1    | 4-1       |
|          |                          | Part 2    |           |
|          |                          | Part 7    |           |
|          |                          | Part 8    |           |
| 05 00 00 | Patch Memory             | # 1       | 4-4       |
|          |                          | # 2       |           |
|          |                          | #127      |           |
|          |                          | #128      |           |
| 08 00 00 | Timbre Memory            | # 1       | 4-1       |
|          |                          | # 2       |           |
|          |                          | # 63      |           |
|          |                          | # 64      |           |
| 10 00 00 | System Area              |           | 4-5       |
| 40 00 00 | Write Request            |           | 4-6       |
| 7F xx xx | All Parameters Reset     |           | 4-7       |



## MIDI Implementation Chart

| Function ...                                                                                                                                     |                                                        | Transmitted | Recognized           | Remarks               |
|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------|----------------------|-----------------------|
| Basic Channel                                                                                                                                    | Default Changed                                        | ×           | 2 - 10<br>×          |                       |
| Mode                                                                                                                                             | Default Messages Altered                               | ×           | 3<br>×               |                       |
|                                                                                                                                                  |                                                        | ×           | ×                    |                       |
|                                                                                                                                                  |                                                        | *****       | ×                    |                       |
| Note Number                                                                                                                                      | True Voice                                             | ×           | 0 - 127<br>12 - 108  |                       |
|                                                                                                                                                  |                                                        | *****       |                      |                       |
| Velocity                                                                                                                                         | Note ON<br>Note OFF                                    | ×           | ○ v = 1 - 127<br>×   |                       |
|                                                                                                                                                  |                                                        | ×           | ×                    |                       |
| After Touch                                                                                                                                      | Key's<br>Ch's                                          | ×           | ×                    |                       |
|                                                                                                                                                  |                                                        | ×           | ×                    |                       |
| Pitch Bender                                                                                                                                     |                                                        | ×           | ○                    |                       |
| Control Change                                                                                                                                   | 1                                                      | ×           | ○                    | Modulation            |
|                                                                                                                                                  | 2 - 5                                                  | ×           | ×                    |                       |
|                                                                                                                                                  | 6                                                      | ×           | *                    | Data Entry            |
|                                                                                                                                                  | 7                                                      | ×           | ○                    | Volume                |
|                                                                                                                                                  | 8, 9                                                   | ×           | ×                    |                       |
|                                                                                                                                                  | 10                                                     | ×           | ○                    |                       |
|                                                                                                                                                  | 11                                                     | ×           | ○                    | Pan Expression        |
|                                                                                                                                                  | 12 - 63                                                | ×           | ×                    |                       |
|                                                                                                                                                  | 64                                                     | ×           | ○                    |                       |
|                                                                                                                                                  | 65 - 99                                                | ×           | ×                    | Hold 1                |
|                                                                                                                                                  | 100, 101                                               | ×           | * (0)                | RPN LSB, MSB          |
|                                                                                                                                                  | 102 - 120                                              | ×           | ×                    |                       |
|                                                                                                                                                  | 121                                                    | ×           | ○                    | Reset All Controllers |
| Prog Change                                                                                                                                      | True #                                                 | ×           | ○ 0 - 127<br>0 - 127 |                       |
|                                                                                                                                                  |                                                        | *****       |                      |                       |
| System Exclusive                                                                                                                                 |                                                        | ○           | ○                    |                       |
| System Common                                                                                                                                    | Song Pos<br>Song Sel<br>Tune                           | ×           | ×                    |                       |
|                                                                                                                                                  |                                                        | ×           | ×                    |                       |
|                                                                                                                                                  |                                                        | ×           | ×                    |                       |
| System Real Time                                                                                                                                 | Clock Commands                                         | ×           | ×                    |                       |
|                                                                                                                                                  |                                                        | ×           | ×                    |                       |
| Aux Message                                                                                                                                      | Local ON/OFF<br>All Notes OFF<br>Active Sense<br>Reset | ×           | ×                    |                       |
|                                                                                                                                                  |                                                        | ×           | ○ (123 - 127)        |                       |
|                                                                                                                                                  |                                                        | ×           | ○                    |                       |
|                                                                                                                                                  |                                                        | ×           | ×                    |                       |
| Notes<br>* RPN = Registered Parameter Number<br>RPN # 0 : Pitch Bend Sensitivity<br>The value of parameter is to be determined by entering data. |                                                        |             |                      |                       |

Mode 1 : OMNI ON, POLY  
 Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO  
 Mode 4 : OMNI OFF, MONO

○ : Yes  
 × : No

---

## ■ *Specifications*

### **CM-32L LA Sound Module**

#### **Sound source :**

LA System

Maximum voices : 32

#### **Number of sounds :**

Sound part : 128

Rhythm part : 30 and 33

#### **Connectors :**

OUTPUT jacks - L(mono), R

Headphone jack

MIDI connectors - IN, OUT and THRU

DC IN jack

#### **Power supply :**

9V DC (Supplied by ACB-Series AC adaptor)

#### **Current consumption :**

600mA (at 9V DC)

#### **Dimensions :**

284 (W)×239 (D)×46 (H)mm

11-3/16"×9-1/4"×1-2/3"

#### **Weight :**

1.7 kg/3 lb 12oz

#### **Accessories :**

AC Adaptor

MIDI cable (1 pc.)

Connecting cord (2 pcs.)

Owner's Manual

Guidebook for MIDI

\* The specifications for this product are subject to change without prior notice, in the interest of improvement.

# Information

- Please use this AC adaptor only with the specified device.
- Please use the AC Adaptor of an appropriate voltage (120, 220 or 240 ) depending on the voltage system in your country.
- When the device is not used for a long period, be sure to disconnect the AC adaptor (Power Supply Unit) from the wall outlet.
- When you need repair service, call your local Roland Service Station as shown below or the authorized Roland distributor in your country.

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